IN THE SPECIFICATION:

Please replace the paragraph beginning on page 24, line 18, with the following amended paragraph:

a1 cont.

Figure 3C illustrates an example application of the present invention in the area of phased array control. A phased array typically refers to a group of antennas in which the relative phases of the respective signals feeding the antennas are varied in such a way that the effective radiation pattern of the array is reinforced in a desired direction and suppressed in undesired directions. As Figure 3C shows, computer system 102C may couple to a phased array 30~~2~~6. The phased array 30~~2~~6 may comprise a plurality of array elements 304 which may each be controlled independently or in concert with the other array elements 304. The computer system 102C may store and execute software which is operable to control the phased array elements to accomplish a specific task. Other examples of controlled phased arrays include telescope farms and micro-mirror assemblies on fiber optic transfer chips.

Please delete the second occurrence of the term "for all" from the sentence found on page 39, line 3.

Please replace the description of Figures 22 and 23 beginning on page 79, line 13, with the following amended description:

a2 cont

Figure 22 - Locating a Point of Interest in a Region

Figure 22 is a flowchart of one embodiment of a method for locating a point of interest in a region, where an approximate model of the region is known. An exemplary application of this method is the optical fiber alignment task described above with reference to Figure 3D and under the above section titled "Applications".

As Figure 22 indicates, in ~~14~~2202, one or more characteristics of a region of interest within the region may be determined, where the region of interest includes the

point of interest. In one embodiment, the determined characteristics of the region of interest may include the radius or boundary of the region of interest. In another embodiment, the one or more characteristics of the region of interest may comprise an approximate location of the point of interest, e.g., a center of the region of interest. In one embodiment, the determined characteristics of the region of interest may include a general topology of the region of interest. For example, the region of interest may comprise a data distribution, such as a Gaussian or Gaussian-like distribution or surface, and the point of interest may comprise an extremum (peak or low-point) of the data distribution. In one embodiment, determining the one or more characteristics of the region of interest may comprise locating the region of interest in the region. One embodiment of a method for locating the region of interest in the region is described with reference to Figure 23, below.

In ~~14~~2204, a continuous trajectory based on the one or more characteristics of the region of interest may be determined. In the preferred embodiment, the continuous trajectory may allow measurement of the region of interest. An example of such a continuous trajectory is illustrated in Figure 5A, described above. In one embodiment, the continuous trajectory may comprises a plurality of circular scan curve segments connected by smooth transition curves, as shown in Figure 5A. In one embodiment, each scan curve circle may have a diameter equal to some multiple of a determined radius of the region of interest, determined in ~~14~~2202 above. Thus, in one embodiment, determining the continuous trajectory which allows sampling of the area of interest may comprise determining a scan path such as that described with reference to Figure 5A, above.

In ~~144~~2206, the region of interest may be measured at a plurality of points along the continuous trajectory to generate a sample data set.

In ~~14~~2208, a surface fit of the sample data set may be performed using the approximate model to generate a parameterized surface. For example, in the case that the sample data set comprises a Gaussian distribution, the data set may be fit using a Gaussian model to generate a parameterized Gaussian surface.

In ~~14~~2210, a location of the point of interest based on the parameterized surface may be calculated. For example, in the case that the parameterized surface comprises a

parameterized Gaussian surface, a Gaussian peak of the surface may be calculated using the parameterized Gaussian surface.

In ~~14~~2212, the region of interest may optionally be measured at the calculated point of interest to confirm correctness of the calculated location. In other words, in one embodiment, the system may move to the calculated location of the point of interest and make one or measurements to verify that the calculated location of the point of interest is within some specified error of the actual point of interest.

Finally, in 2214, output indicating the determined object characteristics may be generated.

It should be noted that although the example given was for a two dimensional region and object, the method described above may be applied to regions and objects of one or two dimensions. In other embodiments, the method may be applied to regions and objects of dimensionality greater than two.

Figure 23 – Locating the Region of Interest in the Region

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Figure 23 is a flowchart of one embodiment of a method for locating the region of interest in the region, mentioned in ~~14~~2202 of Figure 22, and described with reference to Figures 21A and 21B, above. In one embodiment, locating the region of interest in the region may comprise locating an approximate center of the region of interest.

As Figure ~~22~~23 indicates, in ~~15~~2302, the region may be scanned to locate two or more points of the region of interest, where each of the two or more points has associated measured data. In one embodiment, the two or more points of the region of interest may comprise an entry point and an exit point of the region of interest.

In ~~15~~2304, a first local point of interest in the region of interest proximate to the two or more points of the region of interest may be determined. In one embodiment, the first local point of interest in the region of interest may be determined by scanning along a first scan line between the two or more points of the region of interest, e.g., the entry point and the exit point. For example, the first local point of interest may comprise a local peak (or low-point) of a data distribution located along the first scan line.

In ~~15~~2306, a second scan line may be calculated, where the second scan line passes through the first local point of interest, and where the second scan line is orthogonal to the first scan line.

In ~~15~~2308, the region may be measured (scanned) along the second scan line to generate second scan line associated measured data.

In ~~15~~2310, a second local point of interest may be determined along the second scan line based upon the second scan line associated measured data. For example, the second local point of interest may comprise a local peak (or low-point) of the data distribution along the second scan line.

In ~~15~~2312, the approximate center of the region of interest may be determined based upon one or more of the second local point of interest and the first local point of interest. In one embodiment, if the second local point of interest is determined to be "less interesting" than the first local point of interest, e.g., if the second local point of interest is a lower peak than the first local point of interest, the first local point of interest may be selected as the determined center of the region of interest. Alternately, if the first local point of interest is a lower peak than the second local point of interest, the second local point of interest may be selected as the determined center of the region of interest. In one embodiment, the first and second local points of interest may be used to calculate a third local point of interest comprising the determined center of the region of interest.